

**Missouri River Recovery Management Plan and
Environmental Impact Statement**

**Land Ownership
Environmental Consequences Analysis
Technical Report**

August 2018

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Acronyms and Abbreviations

BiOp	2003 Amended Biological Opinion
CDL	cropland data layer
CSR	corn suitability rating
EIS	environmental impact statement
EQ	environmental quality
ER	Engineering Regulation
ESA	Endangered Species Act
ESH	emergent sandbar habitat
HC	human considerations
MRRMP-EIS	Missouri River Recovery Management Plan and Environmental Impact Statement
MRRP	Missouri River Recovery Program
NED	national economic development
OSE	other social effects
P&G	1983 Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies
PILT	payments in lieu of taxes
RED	regional economic development
RPA	reasonable and prudent alternative
SWH	shallow water habitat
TERC	Tax Equalization and Review Commission
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service

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1.0 Introduction

The Kansas City and Omaha Districts of the U.S. Army Corps of Engineers (USACE), in cooperation with the U.S. Fish and Wildlife Service (USFWS), have developed the Missouri River Recovery Management Plan and Environmental Impact Statement (MRRMP-EIS). The purpose of the MRRMP-EIS is to develop a suite of actions that meets Endangered Species Act (ESA) responsibilities for the piping plover, the interior least tern, and the pallid sturgeon.

The purpose of the Land Ownership Environmental Consequences Technical Report is to provide supplemental information on the Land Ownership analysis in addition to the information presented in Chapter 3 of the MRRMP-EIS. Additional details on the Regional Economic Development (RED) methodology and results are provided in this report. The Other Social Effects (OSE) impacts are presented in the MRRMP-EIS, Chapter 3, Land Ownership, Environmental Consequences section. No National Economic Development (NED) or Environmental Quality (EQ) analyses were undertaken for Land Ownership.

It should be noted that the evaluation of flood risk impacts to property, infrastructure, and agriculture are described in Section 3.12 of the Final EIS, Flood Risk Management and Agriculture and Interior Drainage, with supplemental information in the Flood Risk Management, Agricultural and Interior Drainage Environmental Consequences Analysis Technical Reports. An evaluation of ecosystem services associated with the federal acquisition of lands for habitat is provided in Section 3.23 of the Final EIS, Ecosystem Services.

1.1 Summary of Alternatives

The MRRMP-EIS evaluates the following alternatives. A detailed description of the alternatives is provided in Chapter 2 of the MRRMP-EIS.

- **Alternative 1 – No Action.** This is the No Action alternative, in which the Missouri River Recovery Program (MRRP) would continue to be implemented as it is currently, including a number of management actions associated with the MRRP and 2003 Amended Biological Opinion (BiOp) compliance. Management actions under Alternative 1 include creation of early life stage habitat for the pallid sturgeon and emergent sandbar habitat (ESH), as well as a spring pulse for pallid sturgeon. The construction of habitat would be focused in the Garrison and Gavins reaches for ESH (an average rate of 164 acres per year) and between Ponca to the mouth near St. Louis for pallid sturgeon early life stage habitat (3,999 additional acres constructed).
- **Alternative 2 – USFWS 2003 Biological Opinion Projected Actions.** This alternative represents the USFWS interpretation of the management actions that would be implemented as part of the 2003 Amended BiOp Reasonable and Prudent Alternative (RPA) (USFWS 2003). Whereas Alternative 1 only includes the continuation of management actions USACE has implemented to date for BiOp compliance, Alternative 2 includes additional iterative actions and expected actions that the USFWS anticipates would ultimately be implemented through adaptive management and as impediments to implementation were removed. Considerably more early life stage habitat (10,758 additional acres constructed) and ESH (an average rate of 1,331 acres per year) would be constructed under Alternative 2 than under Alternative 1. In addition, a spring pallid sturgeon flow release would be implemented every year if specific conditions were met. Alternative 2 would also modify System operations to allow for summer flows that are

sufficiently low to provide for early life stage habitat as rearing, refugia, and foraging areas for larval, juvenile, and adult pallid sturgeon.

- **Alternative 3 – Mechanical Construction.** The USACE would mechanically construct ESH at an average rate of 332 acres per year distributed between the Garrison, Fort Randall, and Gavins Point Reaches. This amount represents the acreage necessary to meet the bird habitat targets after accounting for available ESH resulting from System operations. The average annual construction amount includes replacing ESH lost to erosion and vegetative growth, as well as constructing new ESH. An estimated 3,380 acres of early life stage habitat for the pallid sturgeon would be constructed under Alternative 3. There would not be any reoccurring flow releases or pulses implemented under this alternative; however, should new information be learned through Level 1 and 2 studies over the next 9 years suggesting that spring discharges result in stronger aggregation of adult pallid sturgeon at spawning locations or increased reproductive success, a one-time spawning cue test could be implemented to provide additional information to support or refute this hypothesis. At the present time, it is assumed the test release would be similar to the timing, magnitude, duration, and pattern of the spawning cue included as a recurring release under Alternative 6.
- **Alternative 4 – Spring ESH Creating Release.** The USACE would mechanically construct ESH annually at an average rate of 195 acres per year distributed between the Garrison, Fort Randall, and Gavins Point Reaches. This amount represents the acreage necessary to meet the bird habitat targets after accounting for available ESH resulting from implementation of an ESH-creating reservoir release in the spring. Alternative 4 would be similar to Alternative 1 (the No Action alternative), with the addition of a spring release designed to create ESH for the least tern and piping plover. An estimated 3,380 acres of early life stage habitat for the pallid sturgeon would be constructed under Alternative 4.
- **Alternative 5 – Fall ESH Creating Release.** The USACE would mechanically construct ESH annually at an average rate of 253 acres per year distributed between the Garrison, Fort Randall, and Gavins Point Reaches. This amount represents the acreage necessary to meet the bird habitat targets after accounting for available ESH resulting from implementation of an ESH-creating reservoir release in the fall. Alternative 5 is similar to Alternative 1 (the No Action alternative), with the addition of a release in the fall designed to create sandbar habitat for the least tern and piping plover. An estimated 3,380 acres of early life stage habitat for the pallid sturgeon would be constructed under Alternative 5.
- **Alternative 6 – Pallid Sturgeon Spawning Cue.** The USACE would mechanically construct ESH annually at an average rate of 245 acres per year distributed between the Garrison, Fort Randall, and Gavins Point Reaches. In addition, the USACE would attempt a spawning cue pulse every three years in March and May. These spawning cue pulses would not be started and/or would be terminated whenever flood targets are exceeded. An estimated 3,380 acres of early life stage habitat for the pallid sturgeon would be constructed under Alternative 6.

1.2 USACE Planning Accounts

Alternative means of achieving species objectives were evaluated including consideration for the effects of each action or alternative on a wide range of human considerations (HC). Human considerations to be evaluated in the MRRMP-EIS alternatives are rooted in the economic, social, and cultural values associated with the natural resources of the Missouri River. The HC

effects evaluated in the MRRMP-EIS are required under the National Environmental Policy Act and its implementing regulations (40 CFR Parts 1500–1508). The 1983 Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (P&G) also served as the central guiding regulation for the economic and environmental analysis included within the MRRMP-EIS. Further guidance that is specific to USACE is described in Engineering Regulation (ER) 1105-2-100, Planning Guidance Notebook, which provides the overall direction by which USACE Civil Works projects are formulated, evaluated, and selected for implementation. These guidance documents describe four accounts that were established to facilitate evaluation and display the effects of alternative plans:

- The NED account displays changes in the economic value of the national output of goods and services expressed in monetary units. Contributions to NED are the direct net benefits that accrue in the planning area and the rest of the nation.
- The RED account registers changes in the distribution of regional economic activity (i.e., jobs and income).
- The EQ account displays non-monetary effect of significant natural and cultural resources.
- The OSE account registers plan effects from perspective that are relevant to the planning process, but are not reflected in the other three accounts. In a general sense, OSE refers to how the constituents of life that influence personal and group definitions of satisfaction, well-being, and happiness are affected by some condition or proposed intervention.

The accounts framework enables consideration of a range of both monetary and non-monetary values and interests that are expressed as important to stakeholders, while ensuring impacts are not double counted. The USACE planning accounts evaluated for land ownership include RED and OSE.

1.3 Approach for Evaluating Environmental Consequences to Land Ownership of MRRMP-EIS

Changes in land ownership could affect agricultural operations and crop production within the Missouri River floodplain, which could adversely impact regional economic conditions. Under all MRRMP-EIS alternatives, the USACE would purchase land from willing sellers to develop early life stage habitat for the pallid sturgeon. A portion of federally acquired lands are likely to have been used for agricultural production prior to their purchase by the USACE. Changes in agricultural activity as result of the federal purchase of farmlands could have regional economic effects that include changes in farm employment, implications for businesses that support farming operations, tax receipts to local governments, and other effects due to farming households and other farm-related entities spending more or less money in the local and/or regional economy.

The transition of lands from private to public ownership also impacts the local tax base. If lands were purchased by USACE and put into federal or state management, the property tax revenue to local governments would decrease. To compensate local governments for lost property tax

revenue, counties with non-taxable federal lands are eligible for payments in lieu of taxes (PILT)¹ to offset losses in property taxes and provide local services.

The conceptual flow chart shown in Figure 1 demonstrates, in a stepwise manner, how changes to the physical conditions of the Missouri River and its floodplain under the MRRMP- EIS alternatives can impact agricultural conditions and operations and regional economic conditions. This figure also shows the intermediate factors and criteria that were applied in assessing the RED and OSE consequences associated with changes in land ownership.

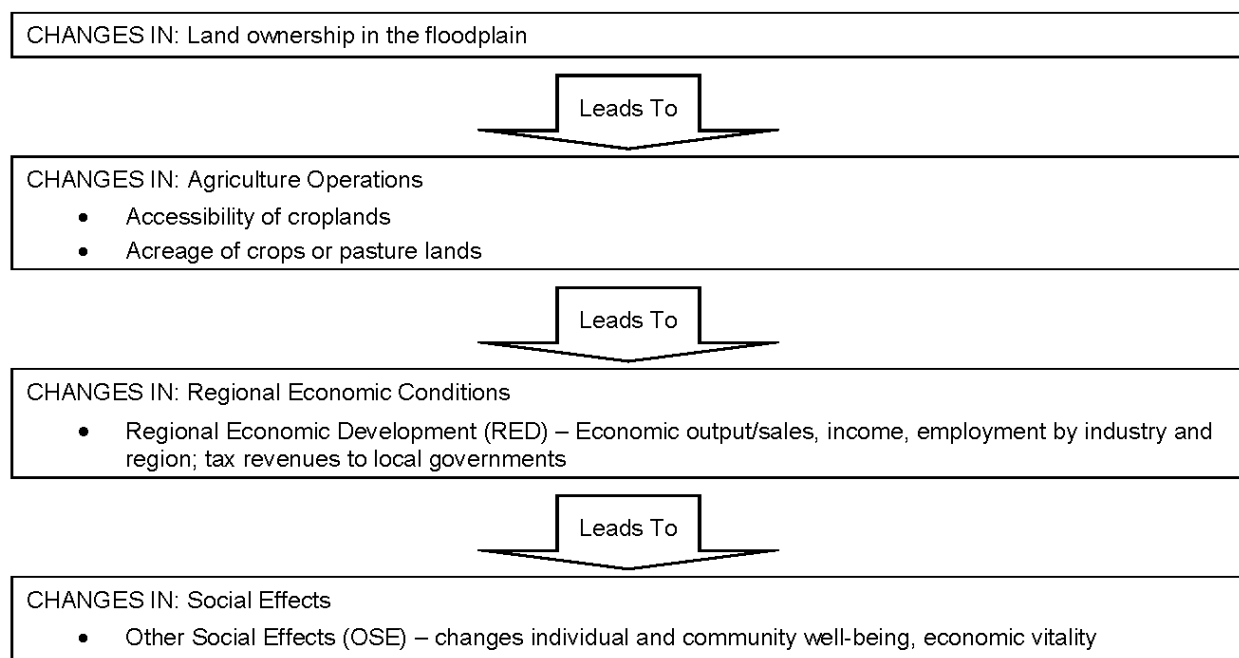


Figure 1. Flow Chart of Inputs Considered in the Land Ownership Evaluation

The evaluation of the environmental consequences to land ownership assessed how the purchase of lands from willing sellers by the USACE to support habitat creation under the MRRMP-EIS alternatives may impact the value of agricultural production within the floodplain, the resulting changes in regional jobs and income from changes in the value of crop production, and changes in property tax receipts to local governments. The methodology and assumptions associated with analyzing these impacts are further discussed in detail in the following sections.

2.0 Regional Economic Development Methodology and Assumptions

A change in land ownership under the MRRMP- EIS alternatives may have implications for the economy as well as changes in tax receipts to local governments. This section provides a brief overview of the methodology for evaluating the RED impacts as a result of the federal

¹ The PILT program is managed through the Bureau of Land Management, and payments are made through the U.S. Department of the Treasury. More information on the PILT program is available here: www.doi.gov/pilt/.

acquisition of lands for construction of early life stage habitat for the pallid sturgeon to meet the specified acreages under each of the MRRMP-EIS alternatives.

2.1 Assumptions

In modeling the environmental consequences as a result of land acquisition, the project team established a set of assumptions. The key assumptions used in the modeling effort follow.

- Based on previous experience of the USACE Kansas City and Omaha District real estate offices, approximately 60 percent of the lands that would be federally acquired in the Omaha District and 80 percent in the Kansas City District are assumed to have been in crop production prior to being purchased by USACE. The RED evaluation of jobs, income, and sales assumes that only the noted proportions of acquired land would have been producing crops and contributing to local jobs and income. The property tax evaluation assumes that the federal acquisition of all lands would decrease property tax revenues.
- Lands that are acquired from willing sellers, even if previously in crop production, may have been marginal producers due to historic flooding or other issues, motivating the selling of the lands from private owners. If this is the case, the regional economic impact (e.g., jobs, income, and sales) may be lower than estimated under this evaluation.
- The federal acquisition of productive farmlands from willing sellers can affect not only property tax receipts to local governments, but also state and federal corporate taxes; federal and state income taxes; personal property taxes; and local and state sales and use taxes as farmers purchase materials, equipment, and spend their income in the local economy. This evaluation focuses on the most prevalent impact of the federal acquisition of farmlands – the reduction in the tax base and associated property tax receipts.
- Since willing sellers would be compensated the fair market value for his or her land, the direct effect as estimated in the economic impact analysis to the farming industry would be lower because the land owners would receive a payment that would theoretically include the future value of crop production. However, many direct farming jobs and labor income (i.e., if paid by the agricultural land owner) would be affected and these workers would not be compensated for the land sale. To be conservative, the analysis does not remove the direct effects, which may result in an overstatement of the regional economic impacts.
- The federal acquisition of lands would occur over a 15-year implementation period. The Final EIS evaluation presents impacts associated with all acquired acres as well as average annual impacts over the 15-year implementation period. The average impact would be incurred cumulatively over the implementation period as the acreage is acquired by the federal government, resulting in the full impact at the end of the implementation period when all lands are acquired. In actuality, the lands would be acquired incrementally over the implementation period.
- Because the actual location of targeted acres for acquisition for early life stage habitat for the pallid sturgeon is not known at this time, the project team allocated acquisition acres by river reach to states based on the proportion of floodplain acreage in the river reach in each state.
- The targeted acres that would be federally acquired under the MRRMP-EIS alternatives do not include any acreage that has already been acquired as part of the MRRP.

- Federally acquired lands that were in crop production were assumed to have crop patterns (i.e., the percentage of corn, alfalfa, barley) consistent with the overall percentage of crops grown in each state in the Missouri River floodplain as reported in the 2014 Cropland Data Layer (CDL) (USDA 2014).
- PILT were estimated based on previous per-acre federal payments for lands purchased for habitat in the counties along the river and averaged for the two river reaches, Ponca, Nebraska to Rulo, and Rulo to the mouth.

2.2 Risk and Uncertainty

Risk and uncertainty are inherent with any model that is developed and used for water resource planning. To address risk and uncertainty in the MRRMP-EIS, the project team has attempted to define and evaluate a reasonable range of plan alternatives that include an array of management actions within an adaptive management framework for the Missouri River. Much of the risk and uncertainty associated with modeling the impacts to land ownership stem from the assumptions that historic farming conditions would continue to represent future agricultural conditions within the floodplain. Changing weather patterns as a result of climate change scenarios may have unforeseen impacts on the fertility of floodplain soils. Over time, these climatic changes may impact the productivity of agricultural lands and types of crops grown within the floodplain.

Other uncertainties including technological advancements, changes in consumer preferences, and agricultural policies may also have unforeseen impacts on the types and size of future crop yields that would be grown on agricultural lands potentially acquired to support habitat creation under the MRRMP. These operational changes may occur over time as land is acquired within the floodplain, however, these changes are speculative and would not be captured by the land ownership analysis conducted as part of the MRRMP-EIS.

A further consideration that would affect the implementation of the MRRMP-EIS alternatives is the availability of federal funds to purchase lands from willing sellers to construct the target number of acres of early life stage habitat for the pallid sturgeon. The outlook for the federal budget is uncertain and depends on the political climate, economic context, and many other factors.

2.3 Regional Economic Development Methodology

Under all MRRMP-EIS alternatives, USACE will create additional habitat to support the early life stage requirements of pallid sturgeon. To reach habitat targets for the pallid sturgeon, USACE will need to construct habitat on existing public lands, and acquire additional private lands along the river from willing sellers. Federal acquisition of private lands may affect land ownership within the floodplain, which could impact agricultural operations, regional economic conditions, and the local tax base. The analysis of environmental consequences associated with land acquisition to support habitat creation under the MRRMP-EIS alternatives included a RED analysis of impacts associated with changes in jobs and income; and property tax receipts to local governments from change in agricultural activities and production. The methodology used to assess these impacts is described in detail below.

2.3.1 Jobs, Income, and Sales

Estimate the Agricultural Acres for Federal Acquisition

Although USACE will construct habitat to support the early life stage requirements of the pallid sturgeon on federal, state, and local public lands along the river, USACE will need to acquire and construct additional habitat on private lands adjacent to river to meet habitat targets for the pallid sturgeon under all MRRMP-EIS alternatives. When land is purchased from private sellers, USACE must purchase additional acres than what is required for pallid sturgeon habitat to account for various parcel sizes, the willingness of the seller to subdivide the parcel, and to provide a buffer between habitat and adjacent land. Based on past pallid sturgeon shallow water habitat (SWH) projects, USACE has estimated that they would have to acquire 7.7 additional acres of land, on average, for every one acre of pallid sturgeon habitat that will be created. Table 1 summarizes the additional number of acres that would need to be federally acquired to meet the habitat targets for pallid sturgeon under the MRRMP-EIS alternatives.

Table 1. Acquisition of Lands by Alternative

Alternative	Reach/State	Federally Acquired Lands (acres)	Acquired Lands in Crop Production (acres)
Alternative 1	Ponca to Rulo	1,848	1,109
	Nebraska	924	554
	Iowa	924	554
	Rulo to the Mouth	5,198	4,158
	Kansas	260	208
	Missouri	4,938	3,950
Alternative 2	Ponca to Rulo	15,555	9,333
	Nebraska	7,778	4,667
	Iowa	7,778	4,667
	Rulo to the Mouth	30,162	24,130
	Kansas	1,508	1,206
	Missouri	28,654	22,923
Alternatives 3–6	Ponca to Rulo	0	0
	Nebraska	0	0
	Iowa	0	0
	Rulo to the Mouth	1,772	1,418
	Kansas	89	71
	Missouri	1,683	1,347

Note: Alternative 1 considers the targeted acreage that would be acquired under the existing MRRP, but does not include any acreage that has already been acquired as part of this program.

Since it is not known exactly where these additional lands will be acquired within the river reaches between Ponca and the mouth, the project team allocated future land purchases to meet habitat targets within the Ponca to Rulo and Rulo to the mouth river reaches under the MRRMP-EIS alternatives to the four states based on the approximate amount for floodplain acreage in each river reach (Table 2). The evaluation used the following states as the study area to estimate the economic impacts.

Table 2. Percentage of Acquisition Acres by State and River Reach

River Reach	State	Estimated Percentage of Acquisition Acres in Each State
Ponca to Rulo	Iowa	50%
	Nebraska	50%
Rulo to the Mouth	Kansas	5%
	Missouri	95%

Identify the Amount and Types of Crops

Of the 2 million Missouri River floodplain acres in the lower river, approximately 1.4 million acres are estimated to be used in agricultural production. Based on state level data reported by the U.S. Department of Agriculture (USDA) CDL, agricultural lands in this region are predominately croplands, growing corn and soybeans. Table 3 summarizes the distribution of crop types used in the evaluation.

Table 3. Percent of Agriculture Acreage by Crop in the Missouri River Floodplain by State

State	Corn	Soybeans	All Other Crops
Nebraska	54.2%	42.6%	3.2%
Iowa	53.6%	45.4%	1.1%
Missouri	43.8%	53.2%	3.0%
Kansas	50.1%	48.4%	1.5%

Source: Estimated with USDA NASS Cropland Data Layer 2014

Estimate Impacts of Land Acquisition on Agricultural Production

To evaluate how the transition of private lands to federal ownership would impact agricultural production, the project team estimated the value of agricultural production that would be lost over the implementation period as a result of land acquisition to support habitat creation within the Ponca to Rulo and Rulo to the mouth river reaches. Losses in agricultural production were valued based on the number of acres anticipated removed from crop production²; the average yield-per-acre for these crops (Table 4); and the average statewide price of these commodities (Table 5).

The value of production that would be reduced as croplands were acquired to support habitat creation were estimated by multiplying the agricultural acquisition acreage by crop type by the average yield-per-acre (Table 5) and price (Table 6) for each crop type in each of the four states.

² It was assumed that 60 to 80 percent of federal land acquisition would have been in crop production, based USACE past experience. Further details are provided in Section 2.3 of this report.

Table 4. Average Commodity Yield by State, 2001–2015

State	Corn (bushels/acre)	Hay (tons/acre)	Soybeans (bushels/acre)
Iowa	167.8	3.1	48.4
Kansas	133.8	2.6	38.5
Missouri	131.3	2.2	35.9
Nebraska	154.7	2.8	49.5

Source: USDA, Economic Research Service 2015.

Table 5. State-Level Normalized Price Estimates for Commodities, 2017

State	Corn for grain bushel	Hay, all types, baled ton	Soybeans for beans bushel
Iowa	\$4.95	\$145.82	\$11.76
Kansas	\$5.06	\$147.57	\$11.40
Missouri	\$4.99	\$106.31	\$11.86
Nebraska	\$4.99	\$115.57	\$11.44

Source: USDA, Economic Research Service 2017

Table 6. IMPLAN® Industry Codes Used for Crop Categories

IMPLAN® industry	Crop as listed in Cropland Data Layer
Oilseed Farming (IMPLAN Sector 1)	Soybeans
Grain Farming (IMPLAN Sector 2)	Corn
Other Crop Farming (IMPLAN Sector 10)	Alfalfa
	Other Hay/Non-Alfalfa
	Fallow/Idle Cropland
	All Other Crops and Agricultural Land Covers

Source: IMPLAN® Group LLC 2015

Economic Impacts of Reduced Agricultural Production

Changes in agricultural activity could have regional effects that include changes in farm employment, implications for businesses that support farming operations, and other effects due to farming households and other farm-related entities spending more or less money in the local and/or regional economy. To model these broader economic impacts resulting from changes in the value of crop production as USACE acquires lands, the project team employed a regional input-output model known as IMPLAN®. IMPLAN® is an industry-standard model that traces the flow of dollars between purchasers and producers based on inter-industry, household, and institutional linkages within the designated regional economy. This model provides a snapshot of the local economy within the study area, and shows how it would respond to changes in economic activity.

To assess how reduced agricultural production based on removal of lands from production would affect regional economies, estimated reductions in the value of crop production in each state under the MRRMP-EIS alternatives were mapped to the appropriate IMPLAN® sector³. Based on the types of crop anticipated to be affected, changes in agricultural production were modeled in three IMPLAN® sectors (Table 6). Changes in corn, soybeans, hay, and other field crop production can have three types of impacts on the regional economy.

- **Direct impacts:** jobs, income, and sales directly associated with farming and crop production.
- **Indirect impacts:** jobs, income, and sales associated with industries and businesses that provide goods and services to agricultural producers (e.g., fertilizer producers and distributors, truck and navigation transportation, and other farming support services).
- **Induced impacts:** direct and indirect jobs, income, and sales associated local households spending. Induced industries include medical services, food and beverage establishments, grocery stores, real estate, auto repair services, and many others.

This economic impact analysis measures the total economic impact of crop production losses resulting from federal land acquisitions to support early life stage habitat creation under the MRRMP-EIS alternatives. Since willing sellers would be compensated the fair market value for his or her land, the direct effect to the farming industry would be lower because the land owners would receive a payment that would theoretically include the future value of production. However, many direct farming jobs and labor income (i.e., if paid by the agricultural land owner) would be affected and these workers would not be compensated for the land sale. To be conservative, the analysis presents total economic impacts and does not remove the direct effects which may result in an overstatement of the regional economic impacts.

2.3.2 Property Tax Receipts

A change in land ownership from private to public would have an impact on property tax revenues collected by local government entities. The land ownership change from private to public would change its tax obligation status. If lands were purchased by USACE and put into federal or state management, the property tax revenue to local governments would decrease. However, these local governments would be eligible for PILT (see section 2.3.3 of this report for additional details). PILT is a federal program that provides payments to local governments to help offset losses in property taxes due to non-taxable federal lands within their boundaries.⁴ In addition, once the land is acquired, the USACE may spend a few years planning the project before starting construction at the site. In these cases, USACE may lease the property to private parties, usually for a term of three to five years for agricultural use. Federal agencies will return 75 percent of agricultural lease revenues to the county government to fund local services. This program can temporarily help with the shortfall of lost property taxes over and above the PILT payment, but leased acreages will be reduced as wildlife mitigation features are put into place (USACE 2013).

³ IMPLAN commodity sectors are based on NAICS (North American Industry Classification System) and BEA (Bureau of Economic Analysis) sectors.

⁴ The PILT program is managed through the Bureau of Land Management, and payments are made through the U.S. Department of the Treasury. More information on the PILT program is available here: www.doi.gov/pilt/.

The states evaluated in this analysis assess the value of farmland based on its use value in agriculture. These taxing policies consider the productivity and net earning capacity of the property regardless of the actual value of the agricultural products produced.

Agricultural land values, if relevant for the analysis, were obtained from state departments of revenue websites and local tax assessors. The mill levies were obtained for the counties in the floodplain in each state. Because the exact location of land acquisition has not been determined, an average tax rate was applied to the total acres affected in each state. The following sections discussed the state-specific methodology used for this analysis.

Iowa

In Iowa, the assessment of agricultural lands for tax purposes is based on its productivity or net earning capacity per acre. All agricultural land in the state is assigned a corn suitability rating (CSR) that measures the suitability of the land for producing row crops (the majority of which are corn). Agricultural land in a county is assessed using a five-year productivity study that results in an average CSR for all agricultural land in the county and for individual parcels. A net agricultural value, based on these assessed values and the productivity of the county as a whole, is distributed to all agricultural acreage in the county according to the CSR of that individual acre (higher values will be taxed at a higher rate). The resulting value is capitalized at a statutory rate of 7 percent (Iowa Fiscal Services Division 2013; Iowa Legal Services Division 2015).

Because of the uncertainty of the exact location of land acquisition, the 2013 county-by-county agricultural rents on non-irrigated land were used to assess the net earning capacity per acre. The average tax rates for 2013 for each county in the floodplain were then applied to the estimated assessed value to determine an average tax paid per acre. These values were then inflated to 2018 dollars and divided by the capitalization rate to estimate assessed value. For this analysis, the average property taxes paid on lands in Iowa was estimated to be \$41.05 per acre in 2018 dollars.

Nebraska

Nebraska uses a unique approach to farmland valuation described as the classified-use system under which different tax rates and exemptions are applied to different kinds of property. Agricultural land and horticultural land is divided into classes and subclasses of real property to ensure that tax levels reflect uses appropriate for the land. Classes are assigned based on soil classification surveys (Nebraska Department of Revenue 2011).

The fiscal model used an average tax paid per acre based on a two-step process. First, for all counties near the Missouri River, the average value for all dryland cropland as assigned by county was collected. This is a dollar value based on the productivity rating of the dryland soil (Nebraska Tax Equalization and Review Commission 2016). Second, the estimated tax paid was estimated based on the percent of market value of agricultural land assessed in that county. Agricultural and horticultural land is assessed at between 69 and 75 percent of the market value for agricultural purposes.

The Nebraska Tax Equalization and Review Commission (TERC) collects the county-specific values assigned to agricultural and horticultural land and these values were used for counties where appropriate (Nebraska Tax Equalization and Review Commission 2016). In cases where the TERC did not have specific information for each county, it was assumed that assessed

values of agricultural land were equivalent to 75 percent of the market value (Nebraska Tax Equalization and Review Commission 2015). The average tax rate assessed in each county was then used for counties located in the floodplain with an average tax rate of \$57.43 per acre in 2018 dollars.

Kansas

The appraised value of agricultural land in Kansas is based on the productive potential directly attributed to the natural capabilities of the land. Cultivated land is valued using an eight-year average of landlord net returns given a certain crop mix, yield, soil type, price, production costs, landlord's share of crop, landlord's share of expenses, and management fees. In each county, the average landlord gross income is weighted by the crop mix percentage for each crop, which estimates the landlord's weighted gross income. The county weighted landlord gross income is then weighted by soil type (Kansas Department of Revenue 2014; Kansas Department of Revenue PVD 2013).

To convert the landlord share of agricultural net income into an agricultural value, net income is divided by the capitalization rate and then a percentage of that value is considered the value assessed which a local mill levy is applied (Kansas Department of Revenue 2016; Kansas Department of Revenue 2015). However, for the purposes of this analysis, state tax experts advised using an average tax paid per acre for 2013 for counties located in the floodplain. For all counties along the Missouri River, an average tax rate of \$34.71 per acre in 2018 dollars was used for the analysis.

Missouri

In Missouri, agricultural land is valued based on its productivity value, which is determined based on soil characteristics and other factors. The State Tax Commission of Missouri publishes eight agricultural and horticultural land grades. Grade 1 is prime farmland while grade 8 is the least productive farmland. Grades are determined based on land features, including the farmland's position relative to rivers and streams, slope, erosion, flooding, productivity, climate and moisture availability during the cropping season, color of soil, texture, subsoil characteristics, soil types, and other factors. Soil surveys and the soil productivity index rating also play a factor (Missouri State Tax Commission 2008).

Almost 85 percent of agricultural land in Missouri falls between Grades 4 and 7, with corresponding agricultural values between \$405 per acre and \$79 per acre (Missouri State Tax Commission 2015a). Section 3.10.1 of the Final EIS, Affected Environment for Land Ownership indicates that 52 to 66 percent of the floodplain in the lower river is prime farmland. For this reason and to be conservative, soil grade 2 associated with \$850 per acre was used to estimate the assessed value of lands in Missouri (Missouri State Tax Commission 2015b). Agricultural and horticultural property is assessed at 12 percent of its agricultural production value in Missouri (Missouri State Tax Commission 2015a). The county-specific mill levy is then applied to the assessed value to determine the estimated property tax paid. The average property tax receipts for each river reach was used for the evaluation. For all counties along the Missouri River, the property tax receipt per acre was estimated to be \$7.06 in 2018 dollars, which was confirmed by a local government assessor.

2.3.3 Payments in Lieu of Taxes

When private lands are purchased by the federal government from willing sellers, property taxes are no longer collected on the federal lands. To compensate local governments for lost property tax revenue, counties with non-taxable federal lands are eligible for PILT to offset losses in property taxes and to help provide funding for local government services and programs. The PILT program is managed through the Bureau of Land Management, and payments are made through the U.S. Department of the Treasury. Because the location of lands acquired for habitat was not specifically known, an average PILT was used for the relevant counties in each state. The PILT payments, acres, and USACE acres were obtained for the counties in the Missouri River floodplain from the Department of Interior PILT website (<https://www.doi.gov/pilt>, U.S. Department of the Interior 2017) for 2013 to 2017. The Kansas City and Omaha Districts Real Estate contacts (Harmon pers. comm. 2017; Keating pers. comm. 2017) provided input on the counties with MRRP habitat for which the USACE pays PILT. The average PILT payment per acre used for the specified counties was estimated for the two river reaches, Gavins Point to Rulo, Nebraska and Rulo to St. Louis. The PILT payments were adjusted in 2018 dollars. The average PILT payment was estimated to range between \$2.47 and \$2.69 per acre in 2018 dollars.

3.0 Regional Economic Development Results

This section presents the results of the RED analysis for land acquisition proposed under each of the MRRMP-EIS alternatives. The analysis focused on estimating changes in sales, labor income, and employment from lost agricultural production on acquired lands. This section also presents the results of changes in tax revenue associated with the MRRMP-EIS alternatives. The results are summarized below.

3.1 Summary of Regional Economic Development Results

A summary of RED impacts, measured in terms of changes in sales, labor income, and employment, are summarized in Table 7. The table shows the total sales, employment, and labor income for all states where land acquisition is expected to occur. Alternatives 3 through 6 would have the smallest reduction in labor income, sales, and employment because fewer lands are acquired under these alternatives. Alternative 2 would have the greatest adverse impacts with a decrease of 94 jobs compared to Alternative 1 (the No Action alternative). The following figures show the total change in jobs, income, and sales over the 15-year implementation period.

As with the changes in labor income, employment, and sales, Alternative 2 would have the largest adverse impacts to property tax receipts to local governments (Table 8). Alternative 2 would result in a reduction of \$786,000 in property tax revenue compared to Alternative 1 across all locations associated with the acquisition of all lands at the end of the implementation period. Alternatives 3 through 6, would also have adverse impacts on property tax receipts but they would be smaller than the impacts expected under Alternative 1.

Table 7. Annual Regional Economic Impacts of All Agricultural Land Acquisition under MRRMP-EIS Alternatives, 2018 Dollars

Type of Impact	Alternative 1	Alternative 2	Alternatives 3–6
Nebraska			
Estimated Agricultural Federal Acres Acquired	554	4,667	0
Loss in Sales	–\$593,904	–\$4,999,014	\$0
Change in Sales Loss Relative to Alternative 1	n/a	–\$4,405,110	\$593,904
Loss in Employment	–2	–13	0
Change in Employment Loss Relative to Alternative 1	n/a	–12	2
Loss in Labor Income	–\$134,492	–\$1,132,044	\$0
Change in Labor Income Loss Relative to Alternative 1	n/a	–\$997,552	\$134,492
Iowa			
Estimated Agricultural Federal Acres Acquired	554	4,667	0
Loss in Sales	–\$543,247	–\$4,572,624	\$0
Change in Sales Loss Relative to Alternative 1	n/a	–\$4,029,377	\$543,247
Loss in Employment	–1	–10	0
Change in Employment Loss Relative to Alternative 1	n/a	–9	1
Loss in Labor Income	–\$144,963	–\$1,220,188	\$0
Change in Labor Income Loss Relative to Alternative 1	n/a	–\$1,075,224	\$144,963
Kansas			
Estimated Agricultural Federal Acres Acquired	208	1,206	71
Loss in Sales	–\$194,352	–\$1,127,750	–\$66,255
Change in Sales Loss Relative to Alternative 1	n/a	–\$933,398	\$128,097
Loss in Employment	–1	–3	0
Change in Employment Loss Relative to Alternative 1	n/a	–3	0
Loss in Labor Income	–\$44,476	–\$258,075	–\$15,162
Change in Labor Income Loss Relative to Alternative 1	n/a	–\$213,600	\$29,314
Missouri			
Estimated Agricultural Federal Acres Acquired	3,950	22,923	1,347
Loss Sales	–\$3,503,298	–\$20,328,293	–\$1,194,275
Change in Sales Loss Relative to Alternative 1	n/a	–\$16,824,995	\$2,309,022
Loss in Employment	–20	–113	–7
Change in Employment Loss Relative to Alternative 1	n/a	–94	13
Loss in Labor Income	–\$810,624	–\$4,703,739	–\$276,342
Change in Labor Income Loss Relative to Alternative 1	n/a	–\$3,893,116	\$534,282

Type of Impact	Alternative 1	Alternative 2	Alternatives 3–6
All Locations			
Estimated Agricultural Federal Acres Acquired	5,267	33,463	1,418
Loss in Sales	–\$4,834,801	–\$31,027,681	–\$1,260,530
Change in Sales Loss Relative to Alternative 1	n/a	–\$26,192,880	\$3,574,271
Loss in Total Employment	–23	–140	–7
Change in Employment Loss Relative to Alternative 1	n/a	–117	16
Loss in Labor Income	–\$1,134,555	–\$7,314,046	–\$291,504
Change in Labor Income Loss Relative to Alternative 1	n/a	–\$6,179,492	\$843,051

Note: Employment figures were rounded to whole numbers.

Table 8. Annual Property Tax Impacts, PILT Payments, and Net Government Revenue Associated with All Land Acquisition under MRRMP-EIS Alternatives, 2018 Dollars

Type of Impact	Alternative 1	Alternative 2	Alternatives 3–6
Nebraska			
Estimated Federal Acres Acquired	924	7,778	0
Change in Property Tax Receipts	–\$53,063	–\$446,643	\$0
PILT	\$2,285	\$19,235	\$0
Net Change in Local Government Revenue	–\$50,778	–\$427,408	\$0
Change in Local Government Revenue Relative to Alternative 1	n/a	–\$376,630	\$50,778
Iowa			
Estimated Federal Acres Acquired	924	7,778	0
Change in Property Tax Receipts	–\$37,931	–\$319,270	\$0
PILT	\$2,403	\$20,228	\$0
Net Change in Local Government Revenue	–\$35,527	–\$299,041	\$0
Change in Local Government Revenue Relative to Alternative 1	n/a	–\$263,514	\$35,527
Kansas			
Estimated Federal Acres Acquired	260	1,508	89
Change in Property Tax Receipts	–\$9,021	–\$52,517	–\$3,075
PILT	\$699	\$4,069	\$238
Net Change in Local Government Revenue	–\$8,322	–\$48,448	–\$2,837
Change in Local Government Revenue Relative to Alternative 1	n/a	–\$40,126	\$5,485
Missouri			
Estimated Federal Acres Acquired	4,938	28,748	1,683
Change in Property Tax Receipts	–\$34,855	–\$202,915	–\$11,882
PILT	\$12,889	\$75,033	\$4,394
Net Change in Local Government Revenue	–\$21,966	–\$127,881	–\$7,488
Change in Local Government Revenue Relative to Alternative 1	n/a	–\$105,915	\$14,478

Type of Impact	Alternative 1	Alternative 2	Alternatives 3–6
All Locations			
Estimated Federal Acres Acquired	7,046	45,717	1,772
Change in Property Tax Receipts	–\$134,870	–\$1,021,344	–\$14,957
PILT	\$18,276	\$118,569	\$4,632
Net Change in Local Government Revenue	–\$116,593	–\$902,775	–\$10,325
Change in Local Government Revenue Relative to Alternative 1	n/a	–\$786,182	\$106,268

3.2 Alternative 1 – No Action

Under Alternative 1, the MRRP would continue to construct habitat to support early life stage requirements of pallid sturgeon as part of the SWH program. This includes management actions that are in compliance with the BiOp, such as acquiring lands to support the creation of early life stage habitat for the pallid sturgeon. Under Alternative 1, an estimated 7,046 acres would be acquired for habitat, of which an estimated 5,267 would be in agricultural production.

Under Alternative 1, a reduction in agricultural production as a result of the federal acquisition of lands would result in adverse impacts to local and regional economies. For all acquired agricultural lands across all geographies, there would be an estimated annual reduction of 23 jobs, \$1.1 million in labor income, and \$4.8 million in sales (Table 9). With the highest number of acres affected, Missouri is expected to experience the most adverse impacts, with a total annual loss of approximately 20 jobs, labor income of approximately \$810,000, and sales of \$3.5 million. However, the land acquisition is likely to be gradual over the implementation period so the impacts would be spread over the 15-year period, but would be experienced in perpetuity after all lands are acquired. In addition, if the farmlands that were acquired by the USACE were not or marginally productive, the regional economic impact would be smaller than estimated. The adverse impacts to regional economic conditions in Nebraska, Iowa, and Kansas would be negligible.

Table 9. Change in Annual Regional Economic Activity from Agricultural Land Acquisition under Alternative 1, 2018 Dollars

Economic Impact ^a	State				Total
	Nebraska	Iowa	Kansas	Missouri	
Estimated Agricultural Federal Acres Acquired over the Implementation Period ^b	554	554	208	3,950	5,267
Loss in Sales for All Land Acquisition	–\$593,904	–\$543,247	–\$194,352	–\$3,503,298	–\$4,834,801
Loss in Employment for All Land Acquisition ^c	–2	–1	–1	–20	–23
Loss in Labor Income for All Land Acquisition	–\$134,492	–\$144,963	–\$44,476	–\$810,624	–\$1,134,555

a The economic impacts include direct, indirect, and induced economic impacts.

b The federally acquired acres have been reduced to show the proportion of acres that are estimated to be in agricultural production. See Table 1 in this document for the comparison of acres.

c Employment figures were rounded to whole numbers, and therefore, the totals may not reflect the sum of the state figures.

Table 10 summarizes the loss in property tax receipts, PILT payments, and the net change in local government revenue associated with the total acres of agricultural land assumed to be acquired over the implementation period. In total, across all locations, there could be a loss of up to \$135,000 in property tax revenue to local governments from the change in land ownership. PILT payments are estimated to be \$18,000 for all of the acquired lands, approximately 13 percent of the reduced property tax payments. A reduction in net local government revenues are estimated to be \$117,000 across all locations.

Table 10. Change in Annual Property Tax Receipts from Agricultural Land Acquisition under Alternative 1, 2018 Dollars

Economic Impact	State				Total
	Nebraska	Iowa	Kansas	Missouri	
Federal Acres Acquired over the Implementation Period	924	924	260	4,938	7,046
Loss in Property Tax for All Acquired Lands	-\$53,063	-\$37,931	-\$9,021	-\$34,855	-\$134,870
PILT for All Acquired Federal Lands	\$2,285	\$2,404	\$699	\$12,889	\$18,276
Total Net Change in Local Government Revenues	-\$50,778	-\$35,527	-\$8,322	-\$21,966	-\$116,593

The greatest loss in local government revenue would be in Nebraska because the state assigns a relatively high value to agricultural lands compared to the other states. These reductions in property tax receipts would not occur at one time and would be spread over the 15-year implementation period, but would also occur in perpetuity after all lands are acquired. The adverse impacts to local governments associated with property tax reductions would be small in most cases. However, if acquired agricultural lands were concentrated in one county, these impacts could be notable, especially for small rural counties. Please see Section 3.5 in this report for an assessment of per capita local government revenue impacts.

Under a worst-case scenario, if all lands were acquired in one county in Nebraska the total loss in annual property tax revenue (after PILT payments) would be \$51,000. In addition, the federal acquisition of productive farmlands from willing sellers can affect not only property tax receipts to local governments, but also other local, state, and federal tax receipts, including state and federal corporate taxes; federal and state income taxes; personal property taxes; and local and state sales and use taxes as farmers purchase materials, equipment, and spend their income in the local economy. The changes in these tax receipts are difficult to estimate and anticipated to be small and adverse as well as small in relation to the estimated changes in property tax receipts. This is due to Federal government payments to landowners for the purchase of the lands, which would be subject to taxes and support spending in the economy, offsetting the reductions in tax receipts.

3.3 Alternative 2 – USFWS 2003 Biological Opinion Projected Actions

Alternative 2 represents the USFWS interpretation of the management actions that would be implemented as part of the 2003 Amended BiOp Reasonable and Prudent Alternative (RPA). Under Alternative 2, considerably more early life stage habitat for the pallid sturgeon would be created Under Alternative 2 than under Alternative 1 (the No Action alternative). Under Alternative 2, an estimated 45,717 acres would be acquired for habitat, of which an estimated 33,463 would be in agricultural production.

Under Alternative 2, a potential reduction in agricultural production because of the federal acquisition of lands would result in adverse impacts to local and regional economies. Alternative 2 would result in about six times the number of acres being acquired for early life stage habitat for the pallid sturgeon over the implementation period compared to Alternative 1. Under Alternative 2, the location of the land acquisition would shift slightly, with larger portions of land acquired in the reach between Ponca and Rulo. Under Alternative 1, only 26 percent of all land acquisition would take place on this stretch of the river, whereas under Alternative 2, this percentage would increase to 34 percent.

For all acquired agricultural lands across all geographies, there would be a loss of 117, \$6.2 million in labor income, and \$26.2 million in sales when compared to Alternative 1. With the highest number of acres affected, Missouri is expected to experience the most adverse impacts, with a loss of approximately 94 jobs for all acquired agricultural lands, \$3.9 million in labor income, and \$16.8 million in sales compared to Alternative 1. Regional economic conditions in Nebraska, Iowa, and Kansas would also be affected with greater lands acquired in these locations relative to Alternative 1, with a loss of 12, 9, and 3 jobs for all agricultural acquired lands, respectively (Table 11).

Overall, relative to Alternative 1, the adverse impacts to regional economic conditions under Alternative 2 in a relatively larger economic context would be long-term and relatively small. However, if the concentration of acquired lands over the implementation period is in one location or a number of locations in a small rural region with limited economic activity, the adverse impacts could be relatively large in relation to the small economy. Impacts to regional economic conditions would be more adverse than experienced under Alternative 1. Again, these results should be interpreted cautiously as a worst-case situation, as these impacts include direct economic impacts and do not account for the compensation of farmers for the land sale.

Table 11. Change in Annual Regional Economic Activity from All Agricultural Land Acquisition under Alternative 2, 2018 Dollars

Impact	State				Total
	Nebraska	Iowa	Kansas	Missouri	
Estimated Agricultural Federal Acres Acquired ^a	4,667	4,667	1,206	22,923	33,463
Loss in Sales for All Acquired Lands	-\$4,999,014	-\$4,572,624	-\$1,127,750	-\$20,328,293	-\$31,027,681
Change in Sales Relative to Alternative 1	-\$4,405,110	-\$4,029,377	-\$933,398	-\$16,824,995	-\$26,192,880
Loss in Employment for All Acquired Lands ^b	-13	-10	-4	-113	-140
Change in Employment Relative to Alternative 1 ^b	-12	-9	-3	-94	-117
Loss in Labor Income for All Acquired Lands	-\$1,132,044	-\$1,220,188	-\$258,075	-\$4,703,739	-\$7,314,046
Change in Labor Income Relative to Alternative 1	-\$997,552	-\$1,075,224	-\$213,600	-\$3,893,116	-\$6,179,492

a The federally acquired acres has been reduced to show the proportion of acres that are estimated to be in agricultural production. See Table 1 in this document for the comparison of acres.

b Employment figures were rounded to whole numbers, and therefore, the totals may not reflect the sum of the state figures.

Under Alternative 2, property tax receipts in all four states would be adversely impacted relative to Alternative 1. This is particularly true in Nebraska, where property tax per acre is higher relative to the other states. Under Alternative 2, annual local government revenues would decrease between \$40,000 and \$377,000 relative to Alternative 1, with the largest adverse impacts in Nebraska and fewest impacts in Kansas (Table 12).

Across multiple locations in each state or in a relatively large more diverse economic context, the adverse impacts to local governments associated with property tax reductions under Alternative 2 would be long-term and relatively small. If acquired agricultural lands were concentrated in one or two relatively smaller-population counties, there could be relatively large long-term adverse impacts compared to Alternative 1. Section 3.5 describes the per capita local government revenue impacts by county, with smaller population counties potentially incurring relatively larger per capita impacts from reductions in local government revenue.

Table 12. Change in Annual Property Tax Receipts from Agricultural Land Acquisition under Alternative 2, 2018 Dollars

Type of Impact	Nebraska	Iowa	Kansas	Missouri	All Locations
Loss in Property Tax for All Federally Acquired Lands	-\$446,643	-\$319,270	-\$52,517	-\$202,915	-\$1,021,344
PILT for All Federally Acquired Lands	\$19,235	\$20,228	\$4,069	\$75,033	\$118,566
Net Change in Local Government Revenue for All Federally Acquired Lands	-\$427,408	-\$299,041	-\$48,448	-\$127,881	-\$902,778
Change in Property Tax from Alternative 1	-\$393,580	-\$281,339	-\$43,496	-\$168,059	-\$886,475
Change in PILT from Alternative 1	\$16,950	\$17,825	\$3,370	\$62,144	\$100,290
Change in Local Government Revenues from Alternative 1	-\$376,630	-\$263,511	-\$40,126	-\$105,915	-\$786,182

The federal acquisition of productive farmlands from willing sellers can affect not only property tax receipts to local governments, but also state and federal corporate taxes; federal and state income taxes; personal property taxes; and local and state sales and use taxes as farmers purchase materials, equipment, and spend their income in the local economy. Changes in these tax receipts are anticipated to be small in relation to the estimated changes in property tax receipts, but could contribute additional adverse impacts to the reduction in local government receipts, especially in smaller rural counties. Although associated changes in other local, state, and federal tax receipts may be adverse, they would likely be small because the government payments to acquire the lands would be subject to taxes and support spending in the economy, offsetting some of the reductions in tax receipts and local government revenues.

3.4 Alternatives 3–6

The anticipated targeted number of acres under Alternatives 3–6 for the creation of early life stage habitat for the pallid sturgeon would be the same across these alternatives. Under Alternatives 3 through 6, an estimated 1,772 acres would be acquired for habitat, of which an estimated 1,418 would be in agricultural production. This is less than the targeted acreage for IRC habitat under Alternative 1 (the No Action alternative) (5,267 acres).

Under Alternatives 3–6, a reduction in agricultural production as a result of the federal acquisition of lands would result in adverse impacts to local and regional economies. Under Alternatives 3–6, no land would be acquired in the reaches of the river from Ponca to Rulo and Nebraska and Iowa would experience no change in economic activity (Table 13). Fewer acres of land would be purchased under Alternatives 3–6 compared to Alternative 1, resulting in an annual increase of 16 jobs and \$843,000 in labor income relative to Alternative 1. Missouri is anticipated to experience most of the change in impacts. It should also be noted that the land acquisition would be incremental and cumulative over the 15-year implementation period and would occur annually in perpetuity thereafter.

Table 13. Change in Annual Regional Economic Activity for All Agricultural Land Acquisition under Alternatives 3–6, 2018 Dollars

Type of Impact	State				Total
	Nebraska	Iowa	Kansas	Missouri	
Estimated Agricultural Federal Acres Acquired	0	0	71	1,347	1,418
Loss in Sales for All Acquired Lands	\$0	\$0	-\$66,255	-\$1,194,275	-\$1,260,530
Change in Sales Relative to Alternative 1	\$593,904	\$543,247	\$128,097	\$2,309,022	\$3,574,271
Loss in Employment for All Acquired Lands	0	0	0	-7	-7
Change in Employment Relative to Alternative 1	2	1	0	13	16
Loss in Labor Income for All Acquired Lands	\$0	\$0	-\$15,162	-\$276,342	-\$291,504
Change in Labor Income Relative to Alternative 1	\$134,492	\$144,963	\$29,314	\$534,282	\$843,051

Under Alternatives 3–6, local government receipts associated with property taxes in Kansas and Missouri would be adversely impacted for all acquired lands with no impacts in Nebraska and Iowa (Table 14). However, because there are fewer anticipated lands to be acquired under Alternatives 3–6 compared to Alternative 1, there would be small beneficial impacts to property tax receipts under these alternatives. Alternatives 3–6 would result in relatively higher local government revenue ranging from \$5,000 to \$51,000 depending on the state compared to Alternative 1. The relative increases could be notable in relatively smaller counties and if lands were concentrated (see Section 3.5 for additional details).

The federal acquisition of productive farmlands from willing sellers can affect not only property tax receipts to local governments, but also state and federal corporate taxes; federal and state income taxes; personal property taxes; and local and state sales and use taxes as farmers purchase materials, equipment, and spend their income in the local economy. Similar to Alternative 1, changes in these tax receipts are anticipated to be adverse, but would be small and beneficial when compared to Alternative 1. The impacts would also be minimal because land owners would be compensated for the acquired lands.

Table 14. Change in Annual Property Tax Receipts from Land Acquisition under Alternatives 3–6, 2018 Dollars

Type of Impact	State				Total
	Nebraska	Iowa	Kansas	Missouri	
Loss in Property Tax for All Federally Acquired Lands	\$0	\$0	–\$3,075	–\$11,882	–\$14,957
PILT for All Federally Acquired Lands	\$0	\$0	\$238	\$4,394	\$4,632
Net Change in Local Government Revenue for All Federally Acquired Lands	\$0	\$0	–\$2,837	–\$7,488	–\$10,325
Reduction in Property Tax from Alternative 1	\$53,063	\$37,931	\$5,946	\$22,973	\$119,912
Change in PILT from Alternative 1	–\$2,285	–\$2,403	–\$461	–\$8,495	–\$13,644
Change in Local Government Revenues from Alternative 1	\$50,778	\$35,527	\$5,485	\$14,478	\$106,268

3.5 Per Capita Local Government Impacts

Reductions in local government revenues can have relatively large impacts per capita in small counties. If the concentration of lands acquired for habitat over the implementation period is in one location or a number of locations in a small rural county with limited economic activity, the adverse impacts could be relatively large in relation to the local economy. The PILT program would help to partially offset these adverse impacts to these local governments. Table 15 summarizes the annual per capita loss in government revenues (reductions in property tax revenues less PILT payments) if all lands were acquired in one county in each state under Alternatives 1, 2 and 3–6 (see the acreages identified by state in Table 9 for reference).

Per capital losses in property tax revenue would be small across all alternatives and counties, with the largest per capita impact in Dixon County, Nebraska under Alternative 2, a reduction of \$72 per person. Alternative 2 would result in the largest adverse impacts to per capita local government revenue across all counties when compared to the other alternatives. Counties with relatively small populations would experience the largest per capita impacts, such as Dixon, Burt, Thurston, and Nemaha counties in Nebraska; Monona, Harrison, Mills, and Fremont in Iowa; and Holt, Atchison, and Chariton counties in Missouri.

Table 15. Annual Per Capita Loss in Government Revenue, 2018 Dollars

State and County	2015 Population ^a	Alternative 1	Alternative 2	Alternatives 3–6
Nebraska				
Richardson	8,201	–\$6.17	–\$51.91	\$0.00
Nemaha	7,168	–\$7.06	–\$59.39	\$0.00
Otoe	15,842	–\$3.19	–\$26.87	\$0.00
Dixon	5,866	–\$8.62	–\$72.57	\$0.00
Dakota	20,798	–\$2.43	–\$20.47	\$0.00
Thurston	6,946	–\$7.28	–\$61.29	\$0.00
Burt	6,647	–\$7.61	–\$64.04	\$0.00

State and County	2015 Population ^a	Alternative 1	Alternative 2	Alternatives 3–6
Washington	20,257	–\$2.50	–\$21.01	\$0.00
Douglas	537,655	–\$0.09	–\$0.79	\$0.00
Sarpy	169,192	–\$0.30	–\$2.52	\$0.00
Cass	25,360	–\$1.99	–\$16.79	\$0.00
Iowa				
Woodbury	102,530	–\$0.35	–\$2.91	\$0.00
Monona	9,088	–\$3.90	–\$32.83	\$0.00
Harrison	14,467	–\$2.45	–\$20.62	\$0.00
Pottawattamie	93,213	–\$0.38	–\$3.20	\$0.00
Mills	14,862	–\$2.38	–\$20.07	\$0.00
Fremont	7,106	–\$4.99	–\$41.98	\$0.00
Kansas				
Brown	9,880	–\$0.85	–\$4.94	–\$0.29
Doniphan	7,859	–\$1.07	–\$6.21	–\$0.36
Leavenworth	78,227	–\$0.11	–\$0.62	–\$0.04
Wyandotte	160,806	–\$0.05	–\$0.30	–\$0.02
Missouri				
Holt	4,615	–\$4.94	–\$28.74	–\$1.68
Atchison	5,440	–\$4.19	–\$24.38	–\$1.43
Jackson	680,905	–\$0.03	–\$0.19	–\$0.01
Lafayette	32,916	–\$0.69	–\$4.03	–\$0.24
Saline	23,334	–\$0.98	–\$5.68	–\$0.33
Cooper	17,593	–\$1.29	–\$7.54	–\$0.44
Moniteau	15,801	–\$1.44	–\$8.39	–\$0.49
Cole	76,533	–\$0.30	–\$1.73	–\$0.10
Osage	13,758	–\$1.66	–\$9.64	–\$0.56
Gasconade	14,948	–\$1.52	–\$8.87	–\$0.52
Franklin	101,828	–\$0.22	–\$1.30	–\$0.08
St. Louis City	317,850	–\$0.07	–\$0.42	–\$0.02
St. Louis	1,001,327	–\$0.02	–\$0.13	–\$0.01
Andrew	17,328	–\$1.31	–\$7.65	–\$0.45
Buchanan	89,561	–\$0.25	–\$1.48	–\$0.09
Platte	93,394	–\$0.24	–\$1.42	–\$0.08
Clay	230,361	–\$0.10	–\$0.58	–\$0.03
Ray	23,031	–\$0.99	–\$5.76	–\$0.34
Carroll	9,096	–\$2.50	–\$14.58	–\$0.85
Chariton	7,650	–\$2.98	–\$17.34	–\$1.02
Howard	10,182	–\$2.24	–\$13.02	–\$0.76
Boone	170,770	–\$0.13	–\$0.78	–\$0.05

State and County	2015 Population ^a	Alternative 1	Alternative 2	Alternatives 3–6
Callaway	44,566	–\$0.51	–\$2.98	–\$0.17
Montgomery	11,939	–\$1.91	–\$11.11	–\$0.65
Warren	33,043	–\$0.69	–\$4.01	–\$0.24
St. Charles	374,805	–\$0.06	–\$0.35	–\$0.02

a Source: U.S. Census Bureau 2017. Note: This table presents the data for the counties from upstream to downstream within for of the states.

4.0 References

Harmon, Meredith. 2017. Email communication between Meredith Harmon, USACE Kansas City Real Estate office, and Holly Bender, Pinyon Environmental, regarding PILT payments to counties. October 5, 2017.

IMPLAN Group LLC. 2015. <https://implan.com>

Iowa Fiscal Services Division. 2013. Issue Review: Iowa Property Tax and Local Government Finance Trends. Retrieved from, <https://www.legis.iowa.gov/DOCS/LSA/IssReview/2014/IRJWR000.PDF>.

Iowa Legal Services Division. 2015. Legislative Guide: Local Property Tax. Retrieved from, <https://www.legis.iowa.gov/docs/publications/LG/9447.pdf>.

Kansas Department of Revenue, Property Valuation Division (PVD). 2013. Answers to Commonly Asked Questions about Agricultural Land Value in Kansas. Retrieved from, <http://www.ksrevenue.org/pdf/agqanda.pdf>.

Kansas Department of Revenue. 2014. Methodologies and Data Sources Used in Determining the Landlord's Share of 2014 Calendar Year Net Returns for Non-Irrigated Cropland for the Agricultural Land-Use Values. Retrieved from, http://www.agmanager.info/farmmgmt/land/land_buy/DRY16.pdf.

Kansas Department of Revenue. 2015. 2015 Real and Personal Property Value and Tax Summaries. Retrieved from, <http://www.ksrevenue.org/PVDMa.html>.

Kansas Department of Revenue. 2016. Motor Vehicle County Mill Levy Certification. Retrieved from, <http://www.ksrevenue.org/pdf/pvd2017mvlevy.pdf>.

Keating, Sean. 2017. Email communication between Sean Keating, USACE Omaha Real Estate office, and Holly Bender, Pinyon Environmental, regarding PILT payments to counties. October 17, 2017.

Missouri State Tax Commission. 2008. State Tax Commission of Missouri Assessor Manual: Ag Land Valuation. Retrieved from, http://stc.mo.gov/files/073_CHAPTER7.3AGLAND.pdf.

Missouri State Tax Commission of Missouri. 2015a. State Tax Commission of Missouri Assessor Manual. Retrieved from <http://stc.mo.gov/files/CHAPTER2-Rev-11-19-15.pdf>.

Missouri State Tax Commission. 2015b. 2015 Ag Land by Grade Survey.

Nebraska Department of Revenue, Property Assessment Division. 2011. Review of the Expanded Agricultural Land Analysis Methodology. Retrieved from, http://www.terc.ne.gov/pdf/2011_Review_Expanded_Agland_Analysis.pdf.

Nebraska Tax Equalization and Review Commission. 2015. 2015 Tax Equalization and Review Commission Determined Levels of Value. Retrieved from, http://www.terc.ne.gov/2015/2015_LOV_Table.pdf.

Nebraska Tax Equalization and Review Commission. 2018. 2016 Exhibit List: Valuation History Charts. Retrieved from, <https://terc.nebraska.gov/2016-exhibit-list>.

U.S. Army Corps of Engineers (USACE). 2013. Corps Real Estate Program Brochure. Retrieved from, <http://www.moriverrecovery.usace.army.mil/mrrp>.

U.S. Census Bureau. 2017. American Community Survey ACS 5-Year Data Profiles. Retrieved from, <https://www.census.gov/acs/www/data/data-tables-and-tools/data-profiles/2015/>.

U.S. Department of Agriculture (USDA). 2014. Cropland Data Layer. Retrieved from, <http://nassgeodata.gmu.edu/CropScape/>.

USDA. 2017. Economic Research Service: State-level normalized price estimates for commodities, 2017. Retrieved from, <https://www.ers.usda.gov/data-products/normalized-prices/>.

USDA. 2015. Economic Research Service: State-level normalized price estimates for commodities, 2015. Retrieved from, <http://www.ers.usda.gov/data-products/normalized-prices.aspx>.

U.S. Department of the Interior. 2017. Payments in Lieu of Taxes: County payments. Retrieved from, <https://www.nbc.gov/pilt/counties.cfm>.

U.S. Fish and Wildlife Service (USFWS). 2003. Amendment to the 2000 Biological Opinion on the Operation of the Missouri River Main Stem Reservoir System, Operation and Maintenance of the Missouri River Bank Stabilization and Navigation Project, and Operation of the Kansas River Reservoir System.